ANALYSING THE SPATIAL DISTRIBUTION OF VULNERABILITY TO FLOODS IN THE SALZACH CATCHMENT, AUSTRIA

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In the context of the EU funded research project BRAHMATWINN (http://www.brahmatwinn.unijena.de/) a method has been developed to spatially model the socio-economic vulnerability to floods. The approach has been implemented in the Salzach catchment in Austria. The area is generally prone to floods as the Salzach River is one of the most regulated rivers in the Europe. In an initial step, vulnerability has been defined following the IPCC specifications, but has been adopted to meet requirements to allow a practical implementation. Therefore vulnerability is defined as a function of sensitivity and adaptive capacity, whereas adaptive capacity constitutes elements of social capacity and resilience.

The major aim has been the development of spatial vulnerability units (VulnUs), which represent a spatial homogenous area of vulnerability. This approach follows different conceptualisations emerging from landscape ecology and object-based image analysis. Specific and suitable indicators have been identified together with local experts and stakeholders to describe the different elements of the vulnerability function. Data sources emerge from governmental spatial data infrastructures and the gridbased results of the Austrian census, which allow the spatial disaggregated integration of population data. In a further step, local stakeholders and experts have been identified to weight the different indicators (Delphi approach). The weights are being integrated to model sensitivity, adaptive capacity and vulnerability respectively. Methods applied include weighted linear combination and regionalization algorithms for spatially integrating multidimensional geodata. As a result, spatial units have been identified which represent common characteristics of vulnerability.

The methodology allows a spatially explicit, disaggregated representation of vulnerability not constrained by administrative units. Next to that, different domains and indicators can be decomposed and mapped independently. One critical point remaining is the validation of complex approaches such as socio-economic vulnerability. However, the approach developed is one step ahead to allow the monitoring of vulnerability over time and within domains, and to provide decision makers with policy relevant information.